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to drink that we concluded that it was the fountain for all the woodland folk. And in their number we included a beautiful deer whose fresh track we found not far away. On the floor of the woods an occasional red cactus, a blue tradescantia, or a single pink phlox made a bright spot of color.

When we were thinking that we had this most remote mesa top with its wild-wood friends all to ourselves we were surprized by a fresh horse track, a shod track; and then something white thru the trees made us raise the field glass—a white rooster on the fence of an adobe! Of course, we might have expected it, for like all the rest of the country the mesa had been sheept. Even now, once disillusioned, we caught the suggestion of sheep bells in the air. On the way down, too, we found old sheep camps and a salt log. It brought the same surprize we felt everywhere in New Mexico, for while to us the country was new, in very fact this land of *poco tiempo* is an old, old land. But after all, what did it matter to us, for on the Mesa del Agua de la Yegua we had come back to the yellow pines!

NOTES FROM LOS CORONADOS ISLANDS

By ALFRED B. HOWELL

WITH TWO PHOTOS

WITH the exception of four days, I was at Los Coronados Islands, Baja California, Mexico, from May 22 until July 15 of this year, and during this time I made a special study of the Xantus Murrelet (*Brachyramphus hypoleucus*), which species is found upon these islands breeding in limited numbers. Altho in former years they were known to breed on Santa Barbara Island, Los Coronados is now believed to be the northernmost place where they make their home. Surprisingly little is really known regarding the habits of this species, and it is not known with any degree of certainty just how far south their range extends.

From my observations, it seems to be beyond doubt that these birds nest twice during the year, once towards the last of March, as has been proved time and again, and once more during the middle of June; for I found fully as many of their eggs at this latter date as did Mr. P. I. Osburn earlier in the season. Mr. Osburn has done considerable collecting here within the last few years, and spent four days with me during June. I have even taken half-incubated eggs from under the sitting bird as late as July 11, and it seems hardly likely that one nesting could straggle along continuously from March until July. And besides, no ornithologist has ever taken eggs of this species in May, as far as I can find out, and there are plenty of them who have visited the islands in that month in order to collect eggs of the other kinds of birds that are found nesting here.

A point that has puzzled me is the question as to what becomes of the young murrelets after they are hatcht. I greatly dislike the practice of advancing theories in order to try and prove scientific problems, but nevertheless I am now tempted to try and reach some conclusion by the process of elimination. The nests which I kept under careful observation numbered five. When discovered, the contents of these nests were in every stage of progress from eggs half-incubated, to young that were barely dry. In every case did I find the nests deserted when the latter were at the uniform age of four days. The obvious explanation to this would

be that when the nest has once been disturbed, the murrelets remove their young to a place of safety as soon as they gain a little strength; but this does not explain away the fact that I failed to discover any new nests that contained young beyond this age, which seems strange, as I made an especially diligent search for them.

I know that at least one observer has seen murrelets that were practically full grown, but still unable to fly, swimming about in the ocean with their parents at some distance from land, but could it be possible that the old birds would remove their little ones to the water when they are several days old, as is the case with wood ducks for instance? It appears to me that it would be impossible for murrelets of this tender age to survive the occasional heavy seas if this were the case, and yet this seems to be the only possible explanation.

The old birds not engaged in incubation spend the entire day at sea and are not to be seen near the islands. These return after dark, when their mates leave



Fig. 57. YOUNG XANTUS MURRELET BELOW NESTING BURROW

for the feeding grounds, and in their turns, reseek the burrows just before the first gray lights of morning. From the contents of their stomachs, it is evident that they feed upon all kinds of small sea life, including crustaceans, and Mr. Osburn has found some of them to contain a certain green sea-weed, for which, as none of it is found floating at the surface, they must dive; practically all of their food is obtained in this manner anyway.

Their notes, consisting of a sharp twittering, are to be heard most frequently after midnight, when apparently they begin making their way into the shallow water very near the island, preparatory to the general movement at dawn. When feeding they are usually found in lone pairs at this time of year, altho I have occasionally seen six or eight individuals in one flock, where perhaps there was an especially abundant supply of food. It is odd, too, that thruout the nesting season while one of a pair is always incubating, just two birds are feeding together, but perhaps the lonely males are fond of a little flirting on the side. One finds that the birds

occupying the burrows during the day are about equally divided between males and females.

Murrelets are also attracted by light, as is the case with so many of the nocturnal sea-birds, and I have had them enter my tent thru the front flap and under the sides at night when my lantern was lighted.

The eggs of this species are laid upon the bare ground at the end of a burrow under a rock or in a natural cranny, and show an almost limitless capacity for variation. Even in the same nest I have found one egg that was clear sky-blue with very faint markings, while the other was nearly black. In fact one rarely sees a set in which the eggs are perfectly uniform both as to color and size. But the variation in size is more pronounced in the length than in the width of eggs of a set. The interval between the depositing of eggs was forty-eight hours in the case of two nests noted. With the assistance of Mr. Osburn and several others, I am able to give the average measurements of eighty-five eggs of *B. hypoleucus* as 2.13×1.41 inches. They vary from 1.97 to 2.25 in length, and from 1.32 to 1.48 in width. Sets of one egg are as often found as those of two. Their nests are at all times difficult to locate and require a vast amount of climbing and patient search.

I think it very probable that an occasional pair of Black-vented Shearwaters (*Puffinus opisthomelas*) breed upon these islands, for there were six birds of this species constantly to be seen in the vicinity of the South island; and on June 2, just at daylight, as I was rowing to the North, I looked up in time to see one of these at about a hundred yards from a steep hill-side, far above the water and flying directly out to sea, but altho I hunted for hours, I was unable to locate the nest. At present, this species is not known to breed regularly farther north than San Martin Island, where in March, I saw them congregated by the thousand, at about four in the morning.

I shall omit any reference to the petrels in this article, as I have turned over all the information that I gathered concerning this group to Mr. Osburn, who is preparing a special paper on the subject.

On July 9, I saw a single Wandering Tattler (*Heteractitis incanus*) probably a non-breeding bird which had decided to spend the summer in the southland.

Two pairs of Duck Hawks (*Falco peregrinus anatum*) had their nests here, one pair on the North, and the other on the South island. They must do fearful damage among the murrelets and auklets, for I have frequently seen them catch and kill both species just for the fun of the thing; sometimes only knocking them over, and at others, carrying them for a few yards before dropping them into the waves. On several occasions I witnessed interesting exhibitions of their truly marvelous flying ability. The first and most notable time was when I was collecting on a very steep cliff at two hundred feet above the sea. It being a lucky day, I pulled a murrelet out of a cranny and releast it. As usual, it dropt like a shot strait down until, when it began to curve out over the water, it had attained an enormous velocity. When it had gotten about a hundred yards from the shore, a pair of Duck Hawks left a ledge below me and gave chase. The unfortunate murrelet had not gone a hundred yards farther before he was caught. I am afraid to venture a guess on the speed at which these hawks must have been traveling. When seizing a small pelagic bird, they always stop the wing-beats at the instant of contact and by an upward flirt of their tails, shoot strait up in the air for perhaps a distance of seventy-five feet. They are also responsible for the death of a good many petrels, as is shown by the debris below their ledges. A curious habit that these falcons have, is that of one snatching food from another by turning belly upwards and grabbing the morsel in its talons.

During my whole stay I saw but one covey of about twenty Valley Quail (*Lophortyx californicus vallicola*), on July 7. They were so far advanced in molt at this date that they were almost naked. According to some authorities these birds are very slightly different from those on the mainland, but I am afraid that they will never reach the rank of sub-species, for unless someone succeeds in killing the one black cat that is now on the island, they are destined to be speedily exterminated.

On May 26 I discovered a male Western Tanager (*Piranga ludoviciana*) perch upon a rock above the sea and occupied in gazing longingly at the water. This bird staid near camp for two days and then disappeared.

On June 11 I caught sight of two yellowthroats—most unusual birds to be

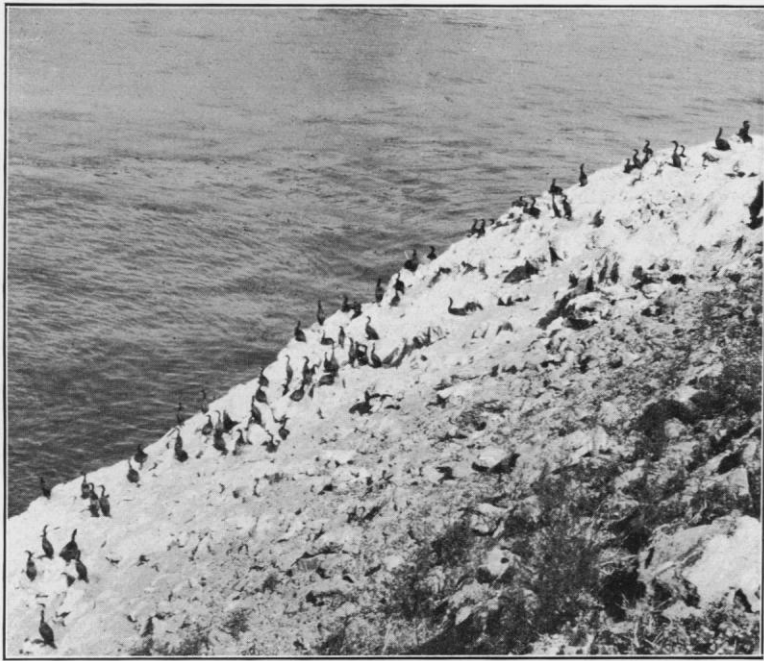


Fig. 58. COLONY OF BRANDT CORMORANTS WHERE SEVERAL BLACK PETRELS WERE ALSO FOUND NESTING

found on a dry island. I had no gun with me and could not again find them on succeeding days, so I have no idea as to their identity except that I do not think they were *Geothlypis trichas arizela*. To the best of my knowledge, this is the first record of either of the two last species having occurred on Los Coronados.

The study of our sea-birds in their nesting haunts contains elements of interest which no other form of field-work holds. Too little is known about the nidification and habits of most of our deep sea wanderers. To be among a colony of petrels after dark, or to sit on the rocks at dawn and listen to the love-talk of the pigmy murre as they return from a night's fishing, is alone worth the stale water, the hard work and the loneliness of a long stay of weeks on one of the desert islands of the Pacific.